

include an elongate medical device **902** (e.g., catheter) encased within a sheath **904**, which is held in a coiled orientation with clasps **906a-c**, **908**, **910**. Clasp **908** can be configured to hold a flushing needle **910** and catheter clips **912**, and clasp **914** can be configured to hold a substrate **916** and a protruding end **918** of the medical device **902**. The medical device **902** can be packaged in a container **920** with an additional component, information pamphlet, and/or liquid scavengers generally designated by the pamphlet **917**. The container **920** can be comprised of at least a first compartment **924** configured to hold and retain the coiled medical device **902** in the sheath **904**, and an optional second compartment **922** can be used for holding the additional components, information pamphlets **917**, and/or liquid scavengers. Optionally, the container can include only a single compartment or any number of compartments as needed.

[0101] As described in more detail within the Examples section below, it has been discovered that the amount of particulate matter capable of attaching to a medical device can be reduced through the selection of antistatic materials that reduce the formation of a static electric charge on the medical device. Additionally, a multi-compartment container in accordance with the present invention can be comprised of an antistatic material. Accordingly, the multi-compartment container containing the medical device within the sheath can be sterilized as a single component, wherein the container and protects the medical device and sheath from contamination during storage and shipping without compromising sterility.

[0102] VI. Antistatic Components

[0103] The present invention provides improved antistatic materials to be included in the medical packaging, containers, and systems described herein. Additionally, the antistatic materials can also be included in a medical device (e.g., catheter, endoscope, and the like) to inhibit the generation of static electricity. The use of antistatic materials in the medical devices and/or packaging can inhibit the generation of static electricity when the medical device is withdrawn from container and sheath. While the antistatic materials are generally described in connection to the sheath and containers of a packaging system, it should be recognized they can also be utilized in any medical device for enhanced antistatic characteristics.

[0104] In one embodiment, a sheath in accordance with the present invention can be comprised of a first material, such as a plastic, metal, ceramic, combination thereof or material described herein in order to provide a flexible and strong protective package. Accordingly, the sheath can have the properties as described herein. Additionally, the sheath can also include an antistatic material distributed throughout the first material so as to prove an antistatic medical device packaging. The sheath can be configured to include the first material and the second material in a manner that does not alter the properties of the medical device disposed within the sheath by using materials that are substantially inert with respect to the material of the medical device. Also, the materials that comprise the sheath can result in a lumen that does not significantly interact with lubricants commonly applied to medical devices, which can be a consequence of using the chemically stable materials described herein.

[0105] In one embodiment, the first material can be any of the materials described herein in connection with the sheath

so as to provide the desired features of the sheath. For example, the first component can be preferably polyethylene or high-density polyethylene; however, other materials can be used.

[0106] The antistatic material can by any type of material that inhibits the formation of static electricity by being electrically non-conductive, or being an electron scavenger. For example, the antistatic material can be selected from the group consisting of polytetrafluoroethylene ("PTFE"), fluorinated ethylene-propylene polymer ("FEP"), carbon-filled polymer, glycerolmonostearate, ethoxylated alkylamine, nonionic ethoxylated alkylamine, lauric diethanol amine, alkyl sulfonates, alkyl dimethyl benzyl ammonium chloride/bromide, anionic aliphatic sulfonate/phosphates, quaternary ammonium compounds, glass-impregnated polystyrene, glass-impregnated acrylonitrile butadiene styrene polymers, antistatic polycarbonate, cationic scavengers, and combinations thereof. Additionally, in some instances it can be preferred for the antistatic material to be selected from the group consisting of polytetrafluoroethylene, fluorinated ethylene-propylene polymer, carbon-filled polymer, glycerolmonostearate, ethoxylated alkylamine, and combinations thereof.

[0107] The antistatic material can be combined into the sheath, clasps, container or other packaging material for the medical device so as to inhibit the generation of static electricity. This can include forming the sheath, clasps, container or other packaging material to include the antistatic material at from about 0.5% to about 49% by weight, more preferably from about 5% to about 39% by weight, and most preferably from about 10% to about 29% by weight.

[0108] In another embodiment, a hygroscopic material can be combined with the first material. Optionally, the hygroscopic material can be present in an amount and distribution so as to absorb water present within the sheath and/or container. The presence of a hygroscopic material can serve to bind excess water, and can also be a supplemental antistatic agent. In part, this is because water bound within the hygroscopic material may be inhibited from contributed to the generation of static electricity and/or can keep the conductivity relatively constant. Also, the use of a hygroscopic material can allow for the contents of the sheath and/or container to be maintained reasonably independent of the humidity at which the package is stored. Moreover, the hygroscopic material can inhibit degradation over time and/or in response to environmental conditions.

[0109] The hygroscopic material can by any material that binds and retains water. In some instances it can be preferred for the hygroscopic material to be a hygroscopic scavenger. For example, the hygroscopic scavenger can be selected from the group consisting of phosphorous pentoxide, ethanol, methanol, glycerin, sodium hydroxide, H_2SO_4 , ZnSO_4 , CaCl_2 , SiO_2 , NaNO_3 , CaSO_4 , and combinations thereof.

[0110] The hygroscopic material can be combined into the sheath, clasps, container or other packaging material for the medical device for any of the purposes described herein. This can include forming the sheath, clasps, container or other packaging material to include the hygroscopic material at from about 0.05% to about 10% by weight, more preferably from about 0.5% to about 5% by weight, and most preferably from about 1% to about 2.5% by weight.

[0111] Additionally, an embodiment of the present invention can include a method of reducing static electricity in a